# Source Water Assessment Program (SWAP) Report For Bisselville Estates

### What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

### SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

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### Table 1: Public Water System (PWS) Information

| | |
|---|---|
| ***PWS NAME*** | **Bisselville Estates** |
| ***PWS Address*** | **1109 Washington Rd.** |
| ***City/Town*** | **Hinsdale, Massachusetts** |
| ***PWS ID Number*** | **1132009** |
| ***Local Contact*** | **Jerry Burnet** |
| ***Phone Number*** | **413-655-8396** |

| *Well Name* | *Source ID#* | *Zone I (in feet)* | *IWPA (in feet)* | *Source Susceptibility* |
|---|---|---|---|---|
| Well #1 | 1132009-01G | 250 | 623 | Moderate |
| Well #2 | 1132009-02G | 250 | 623 | Moderate |

## Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

**Purpose of this report:**
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

**This report includes:**
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

## 1. Description of the Water System

Bisselville Estates wells serve 30 mobile homes and a small, seasonal camping area in the rural town of Hinsdale. This community system is served by on-site septic disposal systems. Both wells are 6-inch diameter bedrock wells and are approximately 100 feet apart. Well #1 is approximately 170 feet deep, with an estimated yield of 16.5 gallons per minute. Well #2 is approximately 182 feet deep, with an estimated yield of 35 gallons per minute. The Zone I and Interim Wellhead Protection Area (IWPA) radii are 250 feet and 623 feet, respectively for each well. These values were assigned based on Title 5 estimated use volumes. The Zone I is the protected area immediately surrounding the wellhead while the IWPA provides an interim protection area for a

### What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

### What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA.

USGS maps of the area describe the bedrock in the area as gneiss. There is no surficial geology map of the area. There is no record of a confining, protective clay layer in the vicinity of the wells. Wells located in these geological conditions are considered to have a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration from the surface.

The wells serving the facility have no treatment at this time. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Please refer to the attached map of the Zone I and IWPA and Table 1 for additional information regarding the location of the wells and activities within the protection areas.

## 2. Discussion of Land Uses in the Protection Areas

There are few activities within the drinking water supply protection areas that are potential sources of contamination.

**Key issues include:**

1. **Nonconforming use in Zone I;**
2. **Low density housing and septic system;**
3. **Above-ground Storage Tanks; and**
4. **Electrical Transformers.**

The overall ranking of susceptibility to contamination for the well is moderate, based on more than one moderate threatening land use or activity in the Zone I and IWPA, as seen in Table 2.

**1. Nonconforming use in Zone I** - The Zone Is for both wells are nonconforming with respect to DEP land use restrictions that allow only water supply related activities in the Zone I. The public water supplier does not own and/or control all land encompassed by the Zone 1 of the well. An old cemetery owned by the town is in both Zone Is. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

**Recommendations:**

✓ Do not conduct any additional activities within the Zone I. Contact MA DEP prior to conducting any activities within Zone I.

### Table 2: Table of Activities within the Water Supply Protection Areas

| Potential Contaminant Sources | Zone I | IWPA | Threat | Comments |
|---|---|---|---|---|
| Low Density housing | Both wells | Both wells | Moderate | Refer to septic system brochure |
| Roadways | Both wells | Both wells | Moderate | Prohibit parking along road |
| Electrical Transformers | Both wells | Both wells | Moderate | Request information regarding PCB in MODF change fro m your electric company |
| Cemetery | Both wells | Both wells | Moderate | Last interment in late 1920's |
| Above-Ground Storage Tanks | No | Both wells | Moderate | Upgrade old tanks, maintain existing tanks, and encourage conversion to propane |

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

## Glossary

**Zone I:** The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

**IWPA:** A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

**Zone II:** The primary recharge area defined by a hydrogeologic study.

**Aquifer:** An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

**Hydrogeologic Barrier:** An underground layer of impermeable material that resists penetration by water.

**Recharge Area:** The surface area that contributes water to a well.

- ✓ Prepare an emergency response plan for responding to an accidental release.
- ✓ Consider raising the wellhead for well #2, as it is located below grade. Secure both wells with watertight sanitary caps, and seal any cracks in the floor.

**2. Low Density Housing --** The Zone Is contain one residence with associated parking, garage, Route 8, and the access road into the park. The IWPA contains the septic system leach field for the entire facility, campsites, and a camping trailer septic pump-out station. The most significant threats from a septic system are from lack of maintenance and improper disposal of non-sanitary waste. Another potential threat from residential users is mismanagement of household waste.

**Recommendations:**

- ✓ Provide residents with information about proper maintenance and disposal practices for septic systems. Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- ✓ Avoid septic tank cleaners, especially those with acids and solvents.
- ✓ Monitor roadside for spills and leaks.
- ✓ Encourage residents to utilize local household hazardous waste collection days.
- ✓ Supply residents with information about BMPs for household hazardous waste management and lawn care.

**3. Above-ground Storage Tanks (ASTs) --** A kerosene AST for heat and hot water is located within the IWPA at the shower house just outside of the Zone I. This tank is used only during the summer seasonal camping and is therefore only filled approximately 25% of capacity. If managed improperly, ASTs can be a potential source of contamination due to leaks or spills of the chemicals they store.

**Recommendations:**

- ✓ Ideally, ASTs in the IWPA should be located in a covered, impermeable containment capable of retaining 110% of the liquid volume, should a spill occur.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.
- ✓ At a minimum, all ASTs older than 15 years old should be replaced and mounted on a concrete pad. They should be maintained with paint.
- ✓ Encourage converting to propane. Provide an incentive, if possible.

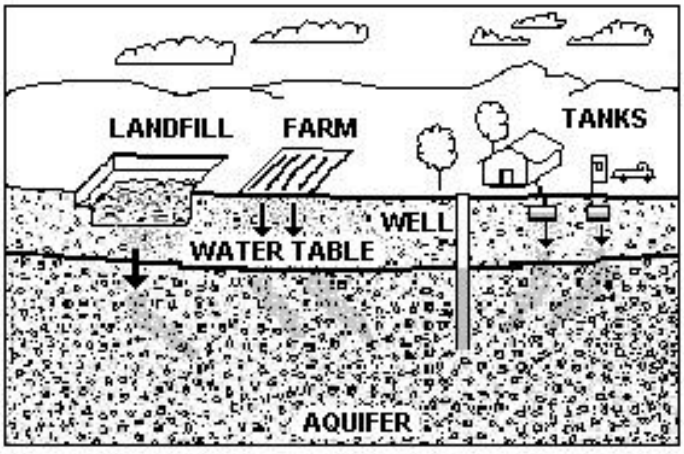


Figure 1: Example of how a well could become contaminated by different land uses and activities.

**4. Electrical Transformer –** Electrical transformers contain Mineral Oil Dielectric Fluids (MODF). Although the use of PCBs is banned in new transformers, historically, PCBs were used in some transformers.

**Recommendations:**

- ✓ Contact the local utility to determine if the transformers contain PCBs. If PCBs are present, urge their immediate replacement.
- ✓ Keep the area near the transformers free of tree limbs that could endanger the transformer in a storm.

Other activities found during the inspection of the protection areas included hay fields in the IWPA. If the landowner spreads manure or fertilizer on the hayfields or if they switch to other crop harvesting, request that they utilize Best Management Practices for their agricultural practices which include nutrient management. Be sure that they are aware that your facility is a public water supply. If they do not already

**For More Information:**

Contact Catherine Skiba in DEP's Western Region Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

**Additional Documents:**

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier, town boards, and the local media.

have a farm plan, refer them to the Natural Resource Conservation Service. Alternatively, they may follow a plan developed through the publication *On Farm Strategies to Protect Water Quality: An Assessment and Planning Tool for Best Management Practices.* Information on funding and other resources for agricultural management is available through the Massachusetts Department of Food and Agriculture at (617) 626-1700 or http://www.massdfa.org/bureaus.htm.

Storage of small amounts of oil and gasoline in the garage for lawn maintenance equipment was also noted during the visit. Provide containment for these items to prevent accidents and leaks within the Zone Is. If possible, store these items outside of the Zone I areas. There is an old cemetery within the Zone Is that has been closed to new interring for over 70 years. Arsenic was used as a preservative during embalming prior to 1910. Although arsenic is a highly toxic heavy metal and may pose a threat to your water supply, there was no arsenic reported in Bisselville Estates' 1999 analytical report.

## 3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Bisselville Estates should review and adopt the key recommendations above and the following:

### Priority Recommendations:

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Raise wellheads above grade and secure the wellhead by sanitary wellcaps and seal all cracks in the floor.

### Zone I:

- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ As feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Prohibit public access to the well and pumphouse by locking facilities, gating roads, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ If the facility intends to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Redirect driveway and parking lot drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Upgrade to propane or natural gas for back-up power sources.

### Training and Education:

- ✓ Educate staff, residents and tenants about proper hazardous material use, storage, disposal, emergency response, and best management practices.
- ✓ Post drinking water protection area signs at key visibility locations, such as the entrance to the facility.

### Facilities Management:

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Establish maintenance requirements for ASTs.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

- ✓ Protective collars around wellheads should slope away from well and casings should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.
- ✓ The facility is currently not registered as a generator of hazardous waste or waste oil. Review enclosed document "A Summary of Requirements for Small Quantity Generators of Hazardous Waste" to determine your status and regulatory requirements, if applicable.

**Planning:**

- ✓ Work with local officials in Hinsdale to include the Bisselville Estate IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

**Agricultural:**

- ✓ Encourage farmers in the IWPA to seek assistance from the Natural Resource Conservation Service (NRCS) in addressing manure management issues as appropriate.

**Funding:**

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). On or about May 1 the new RFR is available and the application is due back on or about June 31. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

## 4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact Sheet
- Your Septic System Brochure
- Pesticide Use Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form
- Small Quantity Generator Fact Sheet